Patent Claims

1. A PIFA antenna arrangement for at least two mobile radio frequency bands which are separated from one another, having a ground connection and an RF supply connection, characterized in that
the PIFA antenna arrangement has at least two antenna branches (Z1; Z2), which run parallel to one another essentially alongside one another, are in the form of strips and are connected to one another at a foot point (F; F1) in order to connect the antenna branches (Z1; Z2) in series,
the antenna branches (Z1; Z2) run at a predetermined distance from one another in order to form a gap (SP),
the antenna branches (Z1; Z2) have straight sections in order to produce capacitive coupling between the antenna branches (Z1; Z2),
the ground connection (G) is arranged at a free end (FE) of one of the antenna branches (Z1),
the RF supply connection (S; S1) is arranged at the outer edge of the antenna branch (Z1) of the PIFA antenna structure, at which the ground connection (G) is provided, and
the widths (W1; W2) of the antenna branches (Z1; Z2), the lengths (B1; B2) of the antenna branches (Z1; Z2) and the gap (SP; SP1) between the antenna branches (Z1; Z2) are of such a size that the PIFA antenna structure has two resonant frequency bands with the desired separation from one another.

2. The PIFA antenna arrangement as claimed in claim 1, characterized in that
the width (W1) of one antenna branch (Z1) is less than 1/15 of the wavelength of the higher-frequency frequency band.

3. The PIFA antenna arrangement as claimed in claimed 2, characterized in that
the width (W1) of one antenna branch (Z1) is less than 1/20 of the wavelength of the higher-frequency frequency band.

4. The PIFA antenna arrangement as claimed in one of claims 1 to 3,
characterized in that
the magnitude of the distance between the ground connection (G) and the RF supply connection (S; S1; S2) is matched to one of the resonant frequencies.

5. The PIFA antenna arrangement as claimed in one of claims 1 to 4,
characterized in that
the area ratio of the at least two antenna branches (Z1; Z2) which are in the form of strips corresponds essentially to the ratio between the two resonant frequencies.

6. The PIFA antenna arrangement as claimed in one of claims 1 to 5,
characterized in that
the PIFA antenna arrangement has two further antenna branches (Z3; Z4) which run parallel to one another, alongside one another, at least in places, are in the form of strips and are connected to one another at a second foot point (F2) in order to connect the two further antenna branches (Z3; Z4) in series with one another,
the further antenna branches (Z3; Z4) run at a predetermined distance from one another over one section in order to form a gap (T),
the further antenna branches (Z3; Z4) have straight sections in order to produce capacitive coupling between the antenna branches (Z3; Z4),

the ground connection (G) is arranged between the antenna branches (Z1; Z2) and the further antenna branches (Z3; Z4),
a further supply connection (S2) is arranged at the outer edge of the antenna branches (Z1; Z3) of the PIFA antenna structure, at which the ground connection (G) is provided, and
the widths of the further antenna branches (Z3; Z4), the lengths

of the further antenna branches (Z3; Z4) and the gap (SP2) between the further antenna branches (Z3; Z4) are of such a size that the PIFA antenna structure has two further resonant frequency bands with the desired separation from one another.

7. The PIFA antenna arrangement as claimed in claim 6, characterized in that
the RF supply connection (S1) and the further RF supply connection (S2) are arranged on opposite sides of the ground connection (G), and are joined together to form a common RF supply line.

8. The PIFA antenna arrangement as claimed in one of claims 6 and 7,
characterized in that
the arrangement has an essentially rectangular outer edge.